

THE VERTEBRATE FAUNA OF THE BASS STRAIT ISLANDS:  
3. THE GALAXIID FISHES OF FLINDERS AND KING ISLANDS

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**Introduction**

This paper represents the third of a series on the vertebrate fauna of the Bass Strait Islands. Previous parts are by Littlejohn & Martin 1965 (amphibia), and Rawlinson 1967 (reptiles).

Flinders and King Islands are the two largest islands in Bass Strait. Respectively, they represent an E. and W. remnant of a landbridge which joined Tasmania to the Australian mainland during the last glacial period (Littlejohn 1964, and included authors). The landbridge was probably also present during earlier Pleistocene glacials.

Flinders Is. was visited by the author in October and November 1962, and King Is. in March 1964. Collecting, which was by angling and by use of a dip net, was concentrated mainly on the upper sections of the streams.

Museum material has provided additional records. Collections have been examined in the Australian Museum, Sydney (AM), the National Museum, Melbourne (NM), the Queen Victoria Museum, Launceston (QVM), the Inland Fisheries Commission, Hobart (IFC), and the University of Melbourne Zoology Department (MUZD).

Literature records are few in number; those noted are by Spencer (1888) and Johnston (1888) for King Island, and by Scott (1936) for Flinders (and Clarke) Islands.

Localities referred to in the text are illustrated in Fig. 1 and 2 in Littlejohn & Martin (1965), except for Yellow Rock Creek (near East Wickham, King Is.), and Three Rivers (approximately 3 miles N. of Currie, King Is.).

**Inland Water Habitats on Flinders and King Islands**

On King Is. and most of Flinders Is., drainage basins are of low relief and streams are mainly slow-flowing with intermittent pools, the water often being stained a red-brown colour by humic acids. In the SE. of King Is. a raised shore platform is backed by a short steep escarpment which temporarily increases stream gradients and some falls occur.

On Flinders Is., the granitic Strzelecki Peaks (2,250 ft) receive the highest annual rainfall of the island (estimated 34 in. maximum—Littlejohn & Martin 1965), and are drained by clear flowing rocky streams with intermittent falls, usually not greater than 10 ft in height. An exception is a fall approximately 80 ft high draining a small plateau in the headwaters of the Sapphire Creek.

Numerous coastal lagoons backing longshore dunes are present on both King and Flinders Islands. In many of these the water is brackish.

TABLE 1  
 Summary of the distribution of galaxiid fishes in the Bass Strait area  
 (++) wide distribution; + restricted distribution)

	SE. Australia	Flinders and King Is.	Tasmania
<i>Galaxias attenuatus</i>	++	++	++
<i>G. truttaceus</i>	++	++	++
<i>G. coxii</i>	++	+	++
<i>G. ornatus</i> group	++	—	+
<i>Brachygalaxias</i>	+	—	+
<i>Paragalaxias</i>	?	—	+

### Galaxiid Fish Fauna

#### FLINDERS ISLAND

##### GALAXIIDAE

#### *Galaxias attenuatus* (Jenyns)

SPECIMENS EXAMINED: Pratts River, 28.x.62 (MUZD); Killiecrankie Creek, 28.x.62 (MUZD).

LITERATURE RECORD: Scott (1936).

#### *Galaxias coxii* Macleay

SPECIMENS EXAMINED: Samphire Creek, 1 mile SE. of Strzelecki Peaks, 29.x.62 (MUZD); Rhodes Creek, 7 miles from Whitemark on road to Loccota, Oct. and Nov. 1962 (MUZD).

#### *Galaxias truttaceus truttaceus* (Cuvier)

SPECIMENS EXAMINED: Pratts River, 28.x.62 (MUZD); Pats River, 29.x.62 and 30.x.62 (MUZD); Rhodes Creek, 7 miles from Whitemark on road to Loccota, 26.x.62 (MUZD), and 23.i.38 (AM, IA 7413).

LITERATURE RECORDS: Scott (1936) (? subspecies); Scott (1940), Rhodes Creek, 16.i.38.

#### KING ISLAND

##### GALAXIIDAE

#### *Galaxias attenuatus* (Jenyns)

SPECIMENS EXAMINED: Three Rivers, 12.xi.62 (MUZD); Etrick River, 24.iii.64 (live specimens in possession of R. Strickland, Marshalls Road).

LITERATURE RECORDS: Spencer (1888) (also recorded as *G. delicatulus*); Johnston (1888).

#### *Galaxias coxii* Macleay

SPECIMEN EXAMINED: Pagarah?, 1962 (specimen in possession of E. O. G. Scott, Launceston, Tasmania).

#### *Galaxias truttaceus truttaceus* (Cuvier)

SPECIMENS EXAMINED: Camp Creek, Currie, Dec. 1906 (NM), and 12.xi.62 (MUZD); Etrick River, 24.iii.64 (live specimens in possession of R. Strickland, Marshalls Road).

LITERATURE RECORDS: Spencer (1888) (also recorded as *G. ocellatus*); Johnston (1888); Scott (1940), Currie, 19.v.34.

### Discussion

#### NEW RECORDS

*Galaxias coxii* Macleay is here recorded for the first time from both the Bass Strait Islands and Tasmania. The identification is based on comparison of the Flinders and King Is. fish (*supra*) and series from the N. (Romaine Ck.) and E. (Pine Ck.) of Tasmania (IFC) with series from the Australian mainland (Wilson's Promontory and Shoalhaven R., MUZD). Both the Bass Strait Is. and Tasmanian specimens are considered to be conspecific with the mainland samples (Frankenberg unpublished obs.).

#### DISTRIBUTION AND ABUNDANCE

*G. truttaceus* and *G. attenuatus* are abundant on both islands in the lower sections of the streams (e.g. Pratts R., Flinders Is.). *G. truttaceus* appears to penetrate further inland, particularly where stream gradients are steeper (e.g. Rhodes Ck., Flinders Is.). *G. coxii* was found in only two streams on Flinders Is., both draining the Strzelecki Peaks. In one of these (Rhodes Ck.), *G. truttaceus* was replaced upstream by *G. coxii* approximately 200 yards above the Loccota-Whitemark road; their ranges did not appear to overlap. The record of *G. coxii* from King Is. is based on only one specimen.

#### COMPARISON WITH MAINLAND AND TASMANIAN GALAXIIDS

At the superspecies level (*sensu* Mayr 1963), 5 or possibly 6 groups of galaxiids have achieved a trans-Bass Strait distribution. Only 3 of these are represented on Flinders or King Is., but in each case, the same species occurs on both Tasmania and the Australian mainland, i.e. *G. attenuatus*, *G. coxii*, and *G. truttaceus*. Distribution of the species groups in the Bass Strait area is summarized in Table 1.

Groups not represented on Flinders or King Is. are the *G. ornatus* species group and the genera *Brachygalaxias* and *Paragalaxias*. The trans-Bass Strait distribution of *Paragalaxias* is, however, open to question as the mainland record is based on only one specimen doubtfully recorded from New South Wales (Scott 1935).

The distribution of *Brachygalaxias* is outlined by Frankenberg (1966). *B. pusillus* Mack, in Victoria is typically found in low-lying swampy country, commonly in association with the pygmy perch (*Nannoperca australis* Gunther) (Frankenberg, unpublished observations). This last species has been recorded on King Is. (Johnston 1888), and it is possible that further collecting may reveal the presence of *Brachygalaxias*.

The *G. ornatus* species group includes the nominal species *G. ornatus* Castelnau of Victoria and *G. johnstoni* Scott of Tasmania (Frankenberg, unpublished data).

It is considered unlikely that this group (if present on Flinders or King Is.) could have escaped notice. In SE. Australia, members of this group are typically found further upstream than, and rarely sympatric with, *G. coxii* (where both occur in the same stream), and are particularly abundant in the Australian Alps up to 6,000 ft above sea level (Frankenberg, unpublished data). On Flinders Is., *G. coxii* was taken at the base of the 80 ft waterfall in the headwaters of the Samphire Ck., but no fish were found above the fall. Similarly, Rhodes Ck. was followed upstream, but no fish were found above (or overlapping) the range of *G. coxii*.

In conclusion, it would appear that (with the exception of *Brachygalaxias*) the distribution and relative abundance of the galaxiid fishes on Flinders and King Islands largely reflects the reduced diversity of environments on these islands when compared with the Australian mainland. Optimum conditions for dispersal across Bass Strait would probably have coincided with the formation of a landbridge during glacial maxima. The galaxiids as a group, however, are euryhaline, and the value of the landbridge would appear to lie more in its effect in directing coastal currents than in providing a means of dispersal through fresh water.

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